Kansas Dept. of Environmental Remediation Storage Tanks

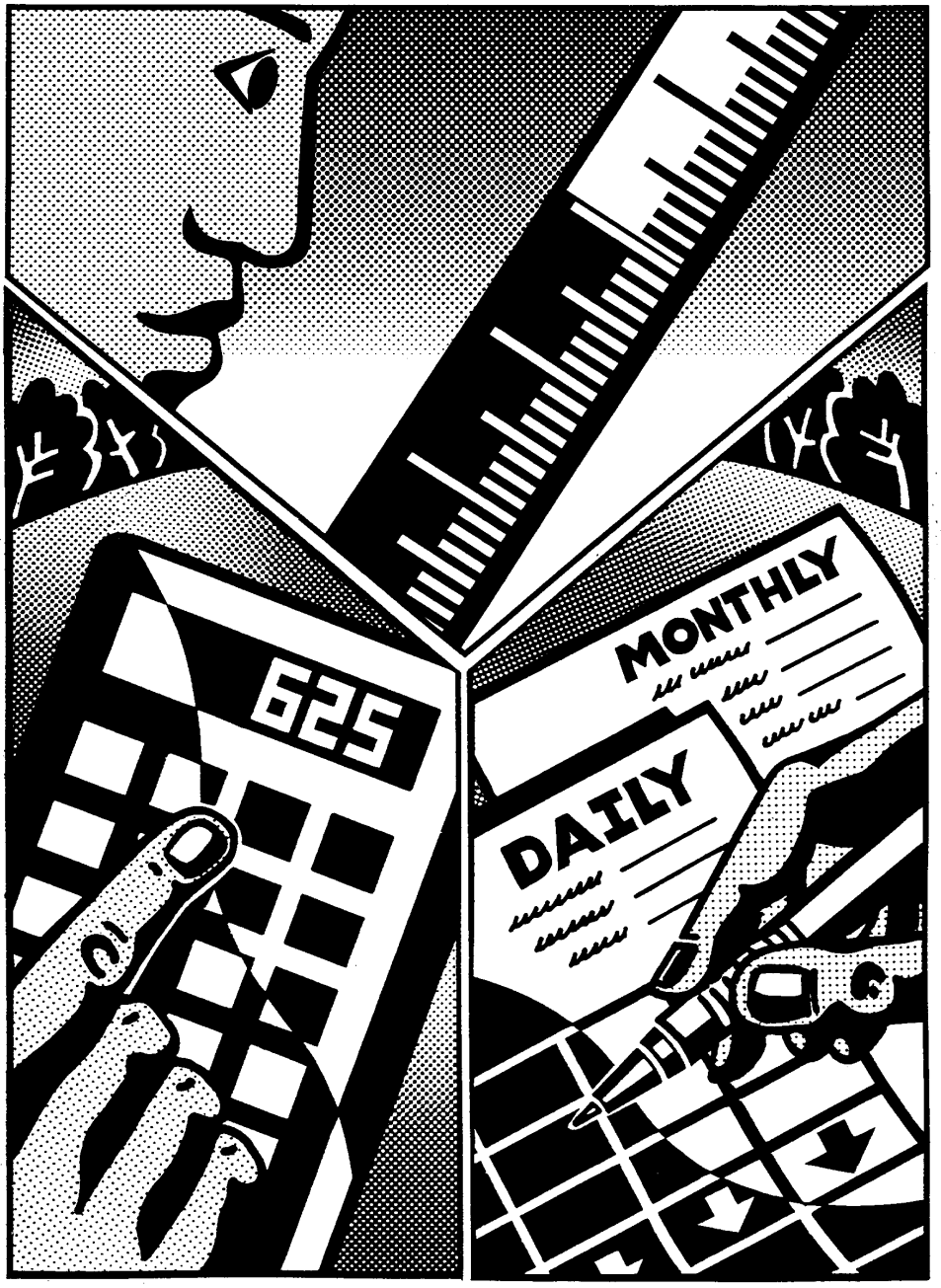
United States Environmental Protection Agency

Solid Waste And Emergency Response 5403W

Developed from EPA 510-B-93-004 November 1993 (KDHE May 28, 2002)

# Doing Inventory Control Right

## For Underground Storage Tanks In Kansas

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# KANSAS INVENTORY CONTROL REQUIREMENTS

**Inventory control must be performed for all tanks that store or dispense product regardless of the method of release detection used by owner/operators on their USTs**.
Inventory control must be performed every operating day for all UST systems that store and dispense fuel. If no fuel is dispensed from a tank on a regular basis, the inventory must be performed and reconciled a minimum of once a month. **(See separate booklet on Stand-by Fuel Oil/Back-up Emergency Generator Tanks)**
A release is subject to reporting if a shortage of greater than 1% of the flow-through plus 130 gallons in a one-month period is indicted. Inputs, withdrawals, and remaining volume must be recorded each operating day with measurements made before and after each delivery. Product level measurements must be within one-eighth of one inch with product metering to within 6 cubic inches for each 5 gallons. The water level within the tank must be determined and recorded a minimum of once a month. Manual gauging will provide a substitute to inventory control requirements for waste oil storage tanks with capacities of 2000 gallons or less.

**K.A.R. 28-44-23 (b)(1) All underground storage tank systems** shall utilize inventory control methods with the following exception. Waste oil storage tanks with capacities of 2000 gallons or less may utilize **manual tank gauging** in place of inventory control. **(See separate booklet on manual tank gauging)**

Waste oil storage tanks using manual tank gauging shall report a suspected release if the following standards are exceeded."

| Nominal tank capacity gallons | Weekly standard | Monthly standard |
|---|---|---|
| 550 or less | 10 gallons | 5 gallons |
| 551 thru 1000 | 13 gallons | 7 gallons |
| 1001 thru 2000 | 26 gallons | 13 gallons |

# CONTENTS

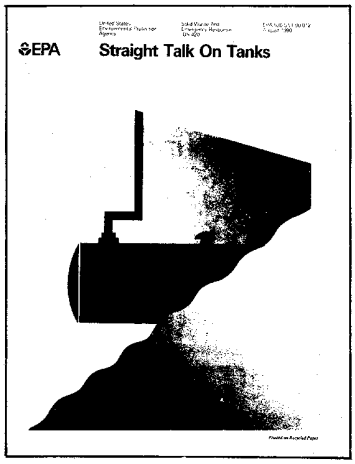
# Why You Should Read This Booklet

Federal and state laws require underground storage tanks (USTs) to have release detection. In addition to release detection, Kansas Administrative Regulation 28-44-23 (b) (1) states that **all regulated UST systems** shall utilize inventory control methods with the following exception; Used oil tanks with capacities of 2000 gallons or less may utilize manual tank gauging in place of inventory control.

**This booklet can help you make sure you do inventory control correctly.**

Inspections conducted nationwide indicate that most people who think they are doing inventory control are not doing it in a way that is likely to find leaks and meet the law's requirements for leak detection. So even if you are SURE you are doing inventory control right, read this booklet carefully — it could save you a lot of grief and money.

If you need information on Kansas leak detection requirements, see the "Overview of Kansas Underground Storage Tank Requirements" or call the KDHE UST program staff in Topeka at 785 296-8061.



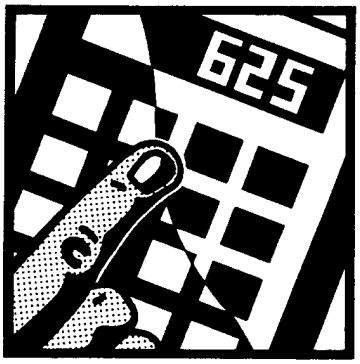

If you need information on federal UST requirements and the various methods of leak detection available to you, see "Straight Talk On Tanks." EPA 530/UST-90/012.

You can go to EPA's UST Web site at **http://www.epa.gov/OUST/** to order or read documents online. You can call EPA's **toll-free** RCRA/Superfund Hotline at 800 424-9346 and order ***up to 30 free copies*** of any title. Or you can write and ask for titles by addressing your request to the publication distributor: NCEPI, Box 42419, Cincinnati, OH 45242. Or you can make your request by calling NCEPI's toll-free number at 800 490-9198. Or you can fax your order to NCEPI at 513 891-6685.

## How Does Inventory Control Work?

This booklet helps you use inventory control to meet state and federal regulatory leak detection requirements for non-standby tanks by showing you how to do three important tasks:

- Good sticking/Automatic Tank Gauging
- Good math
- Good recordkeeping




Without these three, you may fail to meet the leak detection requirements. To do inventory control right, you have to spend time to make sure that you consistently measure the tank's contents correctly, that you don't let math errors creep into your daily and monthly calculations, and that you keep complete, easy-to-read records on file for at least a year.

Basically, inventory control requires daily measurements of tank contents and math calculations that let you compare your **"stick" inventory** (what you've measured) to your **"book" inventory** (what your recordkeeping indicates you should have). Some people call this process "inventory reconciliation." If the difference between your **"stick"** and **"book"** inventory is too large, your tank may be leaking.

*Be sure you read about several important restrictions on the use of 5-yr tightness testing and inventory control as a method of release detection that are described on the next page.

***To use INVENTORY CONTROL correctly,***

***follow Steps 1—5 starting on page 6.***

***Please note these important restrictions on the use of 5-yr tightness testing as your method of leak detection:**

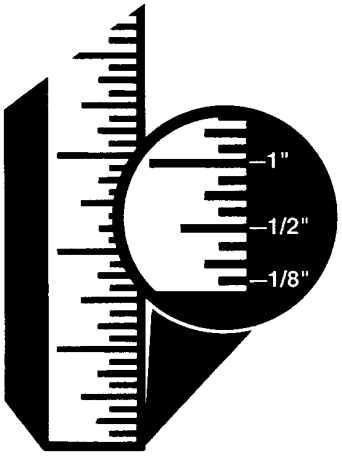
- **5-year Tightness Testing with Inventory Control can be used as a leak detection method.** You can use 5-yr Tightness Testing with Inventory Control for 10 years after installing a new tank that has corrosion protection and spill/overfill devices **or** for 10 years after upgrading an old tank with corrosion protection and spill/overfill devices if upgraded before December 22, 1998. After the 10-year period, you must use a **monthly** monitoring method, such as Automatic Tank Gauging, SIR, Interstitial or Vapor monitoring.

- **Inventory control can never be used alone as a method of leak detection.** (See the 5-yr tightness testing with inventory control option and restrictions.)

- **The combined use of tank Tightness Testing and Inventory Control does not meet your tank system's leak detection requirements for piping.** Pressurized and some suction piping must use other methods of leak detection, such as Interstitial monitoring or annual line Tightness Testing. (See "Straight Talk On Tanks.")

**If you don't pay careful attention to these restrictions, you will fail to meet the leak detection requirements.**

# Do You Have The Right Equipment?




**Gauge Stick Or Automatic Tank Gauges**

The gauge stick used to measure the depth of liquid in an underground tank must be marked or notched to the ⅛ inch, starting with zero at the bottom end. Check your stick to be sure the end has not been worn or cut off and that the stick is not warped. The stick should be made of non-sparking material, such as wood, and varnished to minimize the creeping of fuel above the actual fuel level in the tank. **Instead of using a gauge stick, you may use an Automatic Tank Gauge** to measure the amount of fuel in the tank(s) in gross gallons. Whatever measuring device you use must be capable of measuring the level of product over the full range of the tank's height to the nearest ⅛ inch.

**ATG or Pastes For Finding Water Or Fuel**

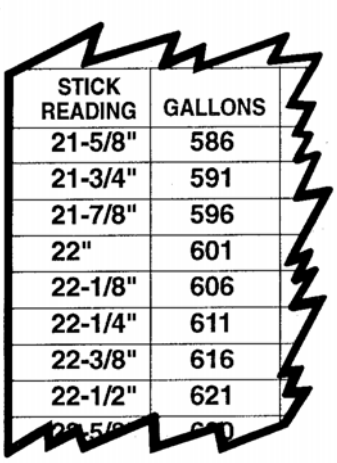
You must check for water in the bottom of the tank at least once each month. Many ATGs can detect water at the bottom of the tank. Another method is smearing a water-finding paste along the bottom of the gauge stick. The paste changes color when it comes in contact with water. Many operators improve their stick readings by smearing a fuel-finding paste on about 6 inches of the stick where they expect the fuel level to be. Fuel-finding paste changes color when it comes in contact with fuel.

**Forms**


The instructions in this booklet are keyed to two forms: the "DAILY INVENTORY WORKSHEET" and the "30 DAY INVENTORY RECORD." You will find filled-in sample copies of these forms on the last two pages of this booklet. These samples are very useful, so copy them and refer to them while you read through the directions that are keyed alphabetically to the sample forms. Also, **near the back of the booklet, you will find "masters" you can copy repeatedly to provide forms for use in your record keeping.** If these forms are filled out according to the instructions in this booklet, you will be in compliance with federal regulations for inventory control. You should find out if state or local requirements have limitations on the use of inventory control or have requirements that are different from those presented in this booklet. You can use other standard record keeping forms, as long as they are clear, consistent, and contain all the information required by the federal and state leak detection regulations.

**Tank Chart**

A tank chart is a table that converts the number of inches of liquid in the tank into the number of gallons. You need a tank chart that **exactly matches** your storage tank (tank manufacturers usually provide charts for their tanks). If you have more than one tank, you will need a chart for each tank unless the tanks are identical. The tank chart must show conversion to gallons for each ⅛ inch stick reading. If your tank chart does not convert each ⅛ inch reading into gallons, contact the tank manufacturer, or, if you have a steel tank, the Steel Tank Institute (847 438-8265) to get an appropriate chart.



| STICK READING | GALLONS |
|---|---|
| 21-5/8" | 586 |
| 21-3/4" | 591 |
| 21-7/8" | 596 |
| 22" | 601 |
| 22-1/8" | 606 |
| 22-1/4" | 611 |
| 22-3/8" | 616 |
| 22-1/2" | 621 |

**You always need to convert inches into gallons in order to fill out the forms correctly and to do the necessary math.** To convert inches into gallons, find your stick's reading to the nearest ⅛ inch on the tank chart, then simply read across to the gallons column to find the number of gallons. If you cannot get a tank chart showing conversion to gallons for each ⅛ inch reading, you must do the additional math explained on page 9.

**Drop Tube**

The fill pipe through which the fuel is delivered into the tank **must have a drop tube** extending to within 1 foot of the bottom of the tank. Stick measurements should be made through a drop tube in the fill pipe or gauging port. If your fill pipe does not have a drop tube, call your petroleum equipment supplier to have one installed.

**Calibrated Dispensing Meters**

Meters must be calibrated according to local standards.

**Manifolded Tanks**

If you have manifolded tanks or dispensers that blend fuel, consider these tanks as one tank system (one single tank) if they share a common inventory of stored fuel. As you follow the directions on the following pages, you will need to combine your measurements and calculations for all the tanks manifolded or blended into one system.

# Step 1—Measure The Tank's Contents

**You must measure the tank every day** that fuel is added or removed. You may take measurements using a gauge stick or an Automatic Tank Gauge. (ATG)

**No fuel can be added or removed from the tank while you are performing Step 1 or Step 2.**

Every day you measure the tank, you should fill out a "DAILY INVENTORY WORKSHEET." As you go through the following directions, refer to the sample DAILY INVENTORY WORKSHEET you will find on the last pages of this booklet. Also, near the back of the booklet is a "master copy" you can tear out to make copies of the DAILY INVENTORY WORKSHEET for your recordkeeping.

***Use the Sample "Daily Inventory Workwheet" from the last two pages of the booklet to see where you put the information from letters "A" through "M" in the following directions.***

Ⓐ Fill in the identifying information at the top of the worksheet.

Ⓑ Next to the "TANK IDENTIFICATION" box are empty vertical columns. Each column represents one tank — consistently enter all information on that one tank in the same vertical column. NOTE: Once you have filled in the tank identification boxes, make copies of the worksheet so you won't have to repeatedly enter the same information.

**USE GOOD STICKING PRACTICES: Slowly** lower the gauge stick to the tank's bottom. Let the stick gently touch the bottom, then quickly bring it back up. Read the depth of fuel indicated by the wet mark to the closest ⅛ inch division on the stick. Use of fuel-finding paste will make your stick readings more accurate.

Ⓒ Write your measurement in the box labeled "END STICK INCHES" for the tank you measured.

**NOTE:** If your tank is equipped with an automatic tank gauge (ATG), you may record the inches of product and gallons of product directly from the ATG's printed tape or simply staple the tape with this information to the daily worksheet.

# Step 2—Record The Amount Pumped

**At the same time** you measure the tank contents (Step 1), you must record on the DAILY INVENTORY WORKSHEET the amount of fuel pumped. **No fuel can be added or removed from the tank while you are sticking the tank and recording the amount pumped.**

Ⓓ Locate the box labeled "AMOUNT PUMPED" on the left side of the worksheet. Copy the numbers from each dispenser's totalizer onto the worksheet. **Be very careful that you write all the meter readings for a tank in the same column**. You may have several dispensers and totalizers for one tank, so the worksheet provides boxes in which you can enter several readings in any order.

Ⓔ Add up the totalizer meter readings in each column and write the result in the box labeled "TODAY'S SUM OF TOTALIZERS."

Ⓕ Find the last DAILY INVENTORY WORKSHEET you completed. Copy "TODAY'S SUM OF TOTALIZERS" from that worksheet into the "Previous Day's Sum of Totalizers" box of the worksheet you are working on today.

Ⓖ On today's worksheet, subtract "Previous Day's Sum of Totalizers" from "TODAY'S SUM OF TOTALIZERS" and write the result in the box labeled "AMOUNT PUMPED TODAY."

***If you pumped fuel through a dispenser and back into a tank, for example during a test, subtract the number of gallons you pumped from "AMOUNT PUMPED TODAY."***

You may have an alternative to reading totalizers. If you have a self-service fueling operation where the cashier can authorize fuel sales from inside the facility, you can probably print out a daily report that gives you the total sales for each type of fuel. **NOTE: You can use the sales volumes from this report instead of reading your totalizer meters only if no fuel sales are made between the time you print the report from the cash register and the time you measure your tanks (Step 1).**

Ⓗ If you are using cash register reports to record the amount pumped, enter the amount of each type of fuel pumped in the box labeled "AMOUNT PUMPED TODAY" or staple the printout to the worksheet.

# Step 3—Record Fuel Deliveries

You must check how much fuel has been delivered **every time any amount of fuel is delivered to your tank. NOTE:** You should not pump any fuel during the time it takes to do items "I" and "J" below.

Before the delivery begins, the liquid level in the tank must be measured. Always use good sticking practices: slowly lower the gauge stick, gently touch the stick to the bottom of the tank, then quickly bring the stick back up. Read the depth of fuel indicated by the wet mark to the nearest ⅛ inch division on the stick.

- **I** Write your measurement in the box labeled "Inches of Fuel Before Delivery" for each tank you measured.

The delivery person can now deliver fuel into the tank. After the delivery, wait at least 5 minutes for the fuel level in the tank to stabilize, and then measure again as described above.

- **J** Record fuel level in the box labeled "Inches of Fuel After Delivery."

***An Automatic Tank gauge (ATG) can usually print a delivery report. If your tank has an ATG that prints such a report, you may simply staple the ATG's delivery report to the DAILY INVENTORY WORKSHEET.***

- **K** Using your tank chart with ⅛ inch readings, convert both delivery readings to the correct number of gallons. Record these numbers in the boxes labeled "Gallons of Fuel Before Delivery" and "Gallons of Fuel After Delivery." (If necessary, see page 9 on converting inches into gallons.)

- **L** Subtract "Gallons of Fuel Before Delivery" from "Gallons of Fuel After Delivery." Record the result in the box labeled "GALLONS DELIVERED (STICK)."

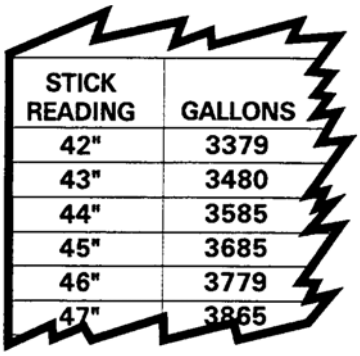
Now look at the delivery receipt and find the volume of each type of product that was delivered. If two volumes are given, one labeled "net" and the other "gross," **use the gross gallons** as the volume of product delivered.

- **M** For each type of fuel delivered, copy the gross gallons delivered from the delivery receipt onto the worksheet in the box labeled "GROSS GALLONS DELIVERED (RECEIPT)." The gallons in items "L" and "M" should roughly match. If they don't, contact your supplier.

# Using Tank Charts Without ⅛ Inch Conversions

If your tank chart does not list direct conversions from inches to gallons for every ⅛ inch, then you must **do the additional math described below every time you stick your tank**.

The easiest way to explain this procedure is with an example. Let's say you have a stick reading of 43⅜ inches and you need to figure how many gallons are in your tank.



| STICK READING | GALLONS |
|---|---|
| 42" | 3379 |
| 43" | 3480 |
| 44" | 3585 |
| 45" | 3685 |
| 46" | 3779 |
| 47" | 3865 |

1. Look on your tank chart and find the inch measurements that are just above and below your stick reading and write down the number of gallons for these inch readings. Subtract the gallon readings to find the difference between the two readings:

   Chart reading at 44 inches: 3,585 gallons
   Chart reading at 43 inches: 3,480 gallons
   ---
   Difference: 105 gallons

2. Dividing 105 by 8 will give you the number of gallons per ⅛ inch, which in this example is 13. (More exactly it is 13.125, but do round off the number to the nearest whole number.) Because your fraction is ⅜, multiply 13 gallons by 3, which gives you 39 gallons as the volume represented by ⅜ inch.

   **CAUTION: The gallons represented by each ⅛ inch will vary from top to bottom of the tank and must be calculated for each conversion.**

3. Take the number of gallons you have just calculated and add it to the inch reading just below your actual stick reading:

   Chart reading at 43 inches: 3,480 gallons
   Gallons at ⅜ inch: + 39 gallons
   ---
   Sum: 3,519 gallons

Thus, your stick reading of 43⅜ inches converts to 3,519 gallons.

**NOTE:** If your tank chart is in half or quarter inches, you must still use this procedure so that your gallon readings are accurate to ⅛ inch.

**After all of this math, you can see why it pays to have the correct tank chart that indicates gallons for each ⅛ inch.**

# Step 4—Calculate Daily Changes In Inventory

In this step, you will copy information from the DAILY INVENTORY WORKSHEET onto the **30-DAY INVENTORY RECORD**. You will then do some math to determine your daily inventory. You need one 30-DAY INVENTORY RECORD for each tank that you have.

As you go through the following directions, refer to the sample MONTHLY INVENTORY RECORD you will find on the reverse side of the DAILY INVENTORY WORKSHEET sample you have already been using. For easy reference, use the sample and keep it handy as you read through the directions. Also, near the back of the booklet is a "master copy" you can use to make copies of the 30-DAY INVENTORY RECORD for your record keeping.

***Use the sample "30-day Inventory Record from the last two pages of the booklet to see where you put the information from letters "N" through "Z" in the following directions.***

- **N** Fill in the identifying information at the top of the 30-DAY INVENTORY RECORD.

**If this is the very first day of your inventory record keeping**, convert the "END STICK INCHES" from the DAILY WORKSHEET into gallons and enter on the 30-DAY RECORD under "END STICK INVENTORY (GALLONS)" for that starting date. (If necessary, see page 9 on converting inches into gallons.) This is all you can do today. Starting tomorrow, follow all of the instructions listed below.

- **O** Find the line in the left column on the 30-DAY RECORD with today's date listed. Copy the previous day's "END STICK INVENTORY (GALLONS)" number into the box for today's "START STICK INVENTORY (GALLONS)."

- **P** Enter the amount of fuel delivered from the DAILY INVENTORY WORKSHEET. If you were NOT pumping fuel during the time when the delivery was taking place, then use the "GALLONS DELIVERED (STICK OR ATG)" number. However, if you had to pump fuel while the delivery was taking place, then use the "GROSS GALLONS DELIVERED (RECEIPT)" number as your delivery amount.

- **Q** Copy the "AMOUNT PUMPED TODAY" number from the DAILY INVENTORY WORKSHEET into the "GALLONS PUMPED" column of the 30-DAY INVENTORY RECORD.

Ⓡ Add the "START STICK INVENTORY (GALLONS)" and the "GALLONS DELIVERED" columns; then subtract the "GALLONS PUMPED" column. Enter the result in the column labeled "BOOK INVENTORY (GALLONS)."

Ⓢ Copy the "END STICK INCHES" number from the DAILY WORKSHEET into the column labeled "END STICK INVENTORY (INCHES)" on the 30-DAY RECORD. Convert inches into gallons and enter the result in the column on the 30-DAY RECORD labeled "END STICK INVENTORY (GALLONS)." (If necessary, see page 9 on converting inches into gallons.)

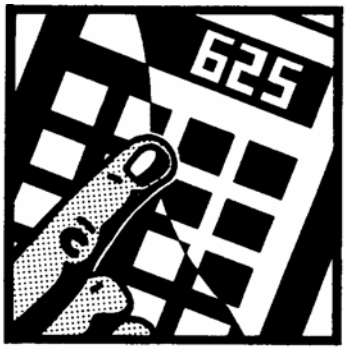
***GOOD ADVICE If you are "over" for 5 days in a row (or "under" for 5 days in a row), you should check for problems with your math and your UST.***

Ⓣ Subtract the "BOOK INVENTORY (GALLONS)" from the "END STICK INVENTORY (GALLONS)." Enter the difference into today's "DAILY OVER OR SHORT" box. This number will usually be a positive or negative number (only rarely will it be zero).

Ⓤ Enter your initials to show who entered today's information.

**At least once each month, you must also measure for water in the tank with paste or check the water level on the ATG Inventory report.** Smear water-finding paste on the bottom few inches of the gauge stick. Open the fill pipe and **slowly** lower the stick to the tank's bottom. Hold the stick on the bottom for 10 seconds for gasoline (30 seconds for diesel). Then remove the stick. If there is water in the bottom of the tank, the water-finding paste will change color. Read the depth of water indicated by the line where the water-finding paste has changed color to the closest ⅛ inch division on the stick. **Do not use this stick reading to measure the amount of fuel in the tank**, because the fuel will creep up the stick and will give you an inaccurate reading.

Ⓥ If you checked the tank for water today, enter the number of inches of water in the tank on the line under "Facility Name" at the top of the 30-day record. If there is no water present, enter a zero to indicate that you in fact checked for water but found none. If you find more than 1 inch of water, you should arrange for its immediate removal, notify the product supplier, and conduct further tests to ensure that the tank is not leaking.




## Step 5—Calculate Monthly Changes In Inventory

At the end of each month, follow the directions below to see if the difference between "stick" and "book" inventory indicates a possible leak.

Ⓦ Add all of the month's "GALLONS PUMPED" numbers and write this total at the bottom of the column in the box labeled "TOTAL GALLONS PUMPED."

Ⓧ Add all the month's "DAILY OVER OR SHORT" numbers: pay careful attention to positive and negative numbers to get an accurate total. For example, adding +4 and +3 and -2 should equal +5. Enter the total at the bottom of the column in the box labeled "TOTAL GALLONS OVER OR SHORT."

Ⓨ Fill out the "LEAK CHECK" line at the bottom of the 30-DAY INVENTORY RECORD as follows:

- Take the "TOTAL GALLONS PUMPED" number and drop the last two digits to get 1% (for example: 6594 becomes 65).
- Add 130 (for example: 65 + 130 = 195).

Enter the result of this calculation at the end of the "LEAK CHECK" line. This number is the **maximum change in inventory allowed** by federal regulations (1% of throughput plus 130 gallons).

Ⓩ At the bottom of the 30-DAY INVENTORY RECORD, circle "YES" or "NO" to show whether your "TOTAL GALLONS OVER OR SHORT" number is **LARGER** than the "LEAK CHECK" number you identified in the previous item. Even if your "TOTAL GALLONS OVER OR SHORT" is a negative number, treat it as a positive number for the purpose of this comparison. For example, -74 would become +74.

**If you circle "YES" for 2 months in a row, you must notify your regulatory agency as soon as possible (usually within 24 hours) that your tank may be leaking.**

**Please call the KDHE district office or UST program staff in Topeka at 785 296-8061 if you circle "YES" for 2 months in a row.**

***Keep your inventory control records on file for at least 1 year. Your state, however, may have different rules about when you have to report a leak or how long you must keep the inventory records. Be sure you know the rules that apply to you.***

# DAILY INVENTORY WORKSHEET

FACILITY NAME: _____

YOUR NAME: _____

DATE: _____

| **TANK IDENTIFICATION** | | | | | |
|---|---|---|---|---|---|
| Type of Fuel | | | | | |
| Tank Size in Gallons | | | | | |
| **END STICK INCHES** | | | | | |
| **AMOUNT PUMPED** | 9 | 9 | 9 | 9 | 9 |
| Totalizer Reading | | | | | |
| Totalizer Reading | | | | | |
| Totalizer Reading | | | | | |
| Totalizer Reading | | | | | |
| Totalizer Reading | | | | | |
| Totalizer Reading | | | | | |
| Totalizer Reading | | | | | |
| **TODAY'S SUM OF TOTALIZERS** | | | | | |
| Previous Day's Sum of Totalizers | | | | | |
| **AMOUNT PUMPED TODAY** | | | | | |
| **DELIVERY RECORD** | 9 | 9 | 9 | 9 | 9 |
| Inches of Fuel Before Delivery | | | | | |
| Gallons of Fuel Before Delivery (from tank chart) | | | | | |
| Inches of Fuel After Delivery | | | | | |
| Gallons of Fuel After Delivery (from tank chart) | | | | | |
| **GALLONS DELIVERED (STICK)** [Gallons "After" ! Gallons "Before"] | | | | | |
| **GROSS GALLONS DELIVERED (RECEIPT)** | | | | | |

**KDHE** Owner #: _____ **KDHE** Facility #: _____

# 30-Day INVENTORY RECORD

FACILITY NAME: _____ MONTH/YEAR: _____/_____

TANK IDENTIFICATION & TYPE OF FUEL: _____

DATE OF WATER CHECK: _____ LEVEL OF WATER (INCHES): _____

| DATE | START STICK INVENTORY (GALLONS) | | GALLONS DELIVERED | | GALLONS PUMPED | | BOOK INVENTORY (GALLONS) | END STICK INVENTORY (INCHES) | END STICK INVENTORY (GALLONS) | DAILY OVER (+) OR SHORT (!) ["End" ! "Book"] | INITIALS |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | | (+) | | (!) | | (=) | | | | | |
| 2 | | (+) | | (!) | | (=) | | | | | |
| 3 | | (+) | | (!) | | (=) | | | | | |
| 4 | | (+) | | (!) | | (=) | | | | | |
| 5 | | (+) | | (!) | | (=) | | | | | |
| 6 | | (+) | | (!) | | (=) | | | | | |
| 7 | | (+) | | (!) | | (=) | | | | | |
| 8 | | (+) | | (!) | | (=) | | | | | |
| 9 | | (+) | | (!) | | (=) | | | | | |
| 10 | | (+) | | (!) | | (=) | | | | | |
| 11 | | (+) | | (!) | | (=) | | | | | |
| 12 | | (+) | | (!) | | (=) | | | | | |
| 13 | | (+) | | (!) | | (=) | | | | | |
| 14 | | (+) | | (!) | | (=) | | | | | |
| 15 | | (+) | | (!) | | (=) | | | | | |
| 16 | | (+) | | (!) | | (=) | | | | | |
| 17 | | (+) | | (!) | | (=) | | | | | |
| 18 | | (+) | | (!) | | (=) | | | | | |
| 19 | | (+) | | (!) | | (=) | | | | | |
| 20 | | (+) | | (!) | | (=) | | | | | |
| 21 | | (+) | | (!) | | (=) | | | | | |
| 22 | | (+) | | (!) | | (=) | | | | | |
| 23 | | (+) | | (!) | | (=) | | | | | |
| 24 | | (+) | | (!) | | (=) | | | | | |
| 25 | | (+) | | (!) | | (=) | | | | | |
| 26 | | (+) | | (!) | | (=) | | | | | |
| 27 | | (+) | | (!) | | (=) | | | | | |
| 28 | | (+) | | (!) | | (=) | | | | | |
| 29 | | (+) | | (!) | | (=) | | | | | |
| 30 | | (+) | | (!) | | (=) | | | | | |
| 31 | | (+) | | (!) | | (=) | | | | | |

**TOTAL GALLONS PUMPED >** _____ **TOTAL GALLONS OVER OR SHORT >** _____

DROP THE LAST 2 DIGITS from the TOTAL GALLONS PUMPED number and enter the first numbers on the line below. ↕

Compare these ↕ numbers

***** LEAK CHECK:** _____ **+ 130 =** _____ **gallons**

Is "TOTAL GALLONS OVER OR SHORT" **LARGER** than "LEAK CHECK" result? **YES NO** (circle one)

If answer is "YES" for 2 MONTHS IN A ROW, **notify KDHE** as soon as possible.
Call the district office or UST Program Staff in Topeka at 785 296-8061

**KEEP THIS PIECE OF PAPER ON FILE FOR AT LEAST 1 YEAR**

SAMPLE

# DAILY INVENTORY WORKSHEET

A FACILITY NAME: LAST CHANCE #2

YOUR NAME: JUAN DOE

DATE: 9/22/93

| | | | | | | |
|---|---|---|---|---|---|---|
| B | **TANK IDENTIFICATION** | 1 | 2 | 3 | 4 | |
| | Type of Fuel | REG UNL | PREM UNL | DIESEL | MID UNL | |
| | Tank Size in Gallons | 6000 | 6000 | 6000 | 10,000 | |
| C | **END STICK INCHES** | 41 1/4 | 58 7/8 | 69 | 86 1/2 | |
| D | **AMOUNT PUMPED** | ↓ | ↓ | ↓ | ↓ | ↓ |
| | Totalizer Reading | 24383 | 30798 | 92485 | 44013 | |
| | Totalizer Reading | 55138 | 11017 | 70178 | 38974 | |
| | Totalizer Reading | | | | | |
| | Totalizer Reading | | | | | |
| | Totalizer Reading | | | | | |
| | Totalizer Reading | | | | | |
| | Totalizer Reading | | | | | |
| | Totalizer Reading | | | | | |
| E | **TODAY'S SUM OF TOTALIZERS** | 79 521 | 41815 | 162663 | 82987 | |
| F | Previous Day's Sum of Totalizers | 78271 | 40260 | 161663 | 82584 | |
| G H | **AMOUNT PUMPED TODAY** | 1250 | 1555 | 1000 | 403 | |
| | **DELIVERY RECORD** | ↓ | ↓ | ↓ | ↓ | ↓ |
| I | Inches of Fuel Before Delivery | 13 7/8 | | | 49 7/8 | |
| K | Gallons of Fuel Before Delivery (from tank chart) | 537 | | | 5246 | |
| J | Inches of Fuel After Delivery | 41 1/4 | | | 86 1/2 | |
| K | Gallons of Fuel After Delivery (from tank chart) | 2672 | | | 9423 | |
| L | **GALLONS DELIVERED (STICK)** [Gallons "After" – Gallons "Before"] | 2135 | | | 4177 | |
| M | **GROSS GALLONS DELIVERED (RECEIPT)** | 2100 | | | 4200 | |

SAMPLE

# MONTHLY INVENTORY RECORD

(N) TANK IDENTIFICATION & TYPE OF FUEL: 4 MIDGRADE UNL

MONTH/YEAR: 9/93

FACILITY NAME: LAST CHANCE #2

DATE OF WATER CHECK: 9/1 LEVEL OF WATER (INCHES): 0 (V)

| DATE | (O) START STICK INVENTORY (GALLONS) | (P) GALLONS DELIVERED | (Q) GALLONS PUMPED | (R) BOOK INVENTORY (GALLONS) | (S) END STICK INVENTORY (INCHES) | (S) END STICK INVENTORY (GALLONS) | (T) DAILY OVER (+) OR SHORT (−) ["End" − "Book"] | (U) INITIALS |
|---|---|---|---|---|---|---|---|---|
| 1 | 4047 (+) | — | (−) 333 | (=) 3714 | 38 1/4 | 3690 | −24 | JD |
| 2 | 3690 (+) | — | (−) 44 | (=) 3646 | 38 | 3658 | +12 | JD |
| 3 | 3658 (+) | — | (−) 329 | (=) 3329 | 35 3/8 | 3323 | −6 | JD |
| 4 | 3323 (+) | — | (−) 60 | (=) 3263 | 35 | 3275 | +12 | JD |
| 5 | 3275 (+) | — | (−) 145 | (=) 3130 | 33 3/4 | 3117 | −13 | JD |
| 6 | 3117 (+) | — | (−) 238 | (=) 2879 | 31 1/8 | 2790 | −89 | JD |
| 7 | 2790 (+) | 6134 | (−) 117 | (=) 8807 | 80 | 8844 | +37 | JD |
| 8 | 8844 (+) | — | (−) 127 | (=) 8717 | 78 7/8 | 8732 | +15 | JD |
| 9 | 8732 (+) | — | (−) 182 | (=) 8550 | 77 1/2 | 8591 | +41 | JD |
| 10 | 8591 (+) | — | (−) 205 | (=) 8386 | 75 1/2 | 8379 | −7 | JD |
| 11 | 8379 (+) | — | (−) 204 | (=) 8175 | 73 5/8 | 8173 | −2 | JD |
| 12 | 8173 (+) | — | (−) 166 | (=) 8007 | 72 | 7991 | −16 | JD |
| 13 | 7991 (+) | — | (−) 320 | (=) 7671 | 69 3/4 | 7730 | +59 | JD |
| 14 | 7730 (+) | — | (−) 307 | (=) 7423 | 67 | 7402 | −21 | JD |
| 15 | 7402 (+) | — | (−) 76 | (=) 7326 | 66 1/2 | 7342 | +16 | JD |
| 16 | 7342 (+) | — | (−) 224 | (=) 7118 | 64 1/8 | 7050 | −68 | JD |
| 17 | 7050 (+) | — | (−) 390 | (=) 6660 | 61 | 6657 | −3 | JD |
| 18 | 6657 (+) | — | (−) 296 | (=) 6361 | 58 5/8 | 6354 | −7 | JD |
| 19 | 6354 (+) | — | (−) 78 | (=) 6276 | 58 1/8 | 6290 | +14 | JD |
| 20 | 6290 (+) | — | (−) 424 | (=) 5866 | 54 5/8 | 5869 | +3 | JD |
| 21 | 5869 (+) | — | (−) 205 | (=) 5664 | 53 1/8 | 5639 | −25 | JD |
| 22 | 5639 (+) | 4177 | (−) 403 | (=) 9413 | 86 1/2 | 9423 | +10 | JD |
| 23 | 9423 (+) | — | (−) 87 | (=) 9336 | 85 1/2 | 9343 | +7 | JD |
| 24 | 9343 (+) | — | (−) 311 | (=) 9032 | 82 | 9036 | +4 | JD |
| 25 | 9036 (+) | — | (−) 239 | (=) 8797 | 79 1/8 | 8757 | −40 | JD |
| 26 | 8757 (+) | — | (−) 256 | (=) 8501 | 76 7/8 | 8526 | +25 | JD |
| 27 | 8526 (+) | — | (−) 264 | (=) 8262 | 74 1/2 | 8270 | +8 | JD |
| 28 | 8270 (+) | — | (−) 263 | (=) 8007 | 72 | 7991 | −16 | JD |
| 29 | 7991 (+) | — | (−) 185 | (=) 7806 | 69 | 7811 | +5 | JD |
| 30 | 7811 (+) | — | (−) 116 | (=) 7695 | 68 | 7690 | −5 | JD |
| 31 | (+) | | (−) | (=) | | | | |

(W) TOTAL GALLONS PUMPED > 6594 TOTAL GALLONS OVER OR SHORT > −74 (X)

DROP THE LAST 2 DIGITS from the PUMPED number and enter on the TOTAL GALLONS line below

Compare these numbers

(Y) LEAK CHECK: 65 + 130 = 195 gallons

Is "TOTAL GALLONS OVER OR SHORT" LARGER than "LEAK CHECK" result? YES (NO) (circle one) (Z)

If answer is "YES" for 2 MONTHS IN A ROW, notify regulatory agency as soon as possible.

**KEEP THIS PIECE OF PAPER ON FILE FOR AT LEAST 1 YEAR**

*>>>Copy and post this reminder where employees who measure tanks can see it!<<<*

# GET GOOD INVENTORY CONTROL MEASUREMENTS!

- **Measure each tank every operating day using an Automatic Tank gauge (ATG) or gauge stick**

- **When Sticking, Use gauge sticks that are**
  - **marked to the ⅛ inch**
  - **not cut off or worn off at the "0" end**
  - **varnished and not warped**

- **Stick along the same side of the drop tube each time**

- **Use good sticking practices**
  - **SLOWLY lower stick**
  - **GENTLY touch stick on tank bottom**
  - **QUICKLY pull stick out**

- **Measure just before each delivery**

- **Wait at least 5 minutes after delivery, then measure again**

- **Read and record totalizer meters carefully**

- **Check for water at least once a month using your ATG or water-finding paste**

KANSAS DEPARTMENT HEALTH & ENVIRONMENT
KDHE

## *Developed in cooperation with...*

*Fiberglass*
*Petroleum Tank & Pipe Institute*

iATTP INTERNATIONAL ASSOCIATION OF TANK TESTING PROFESSIONALS

PEI PETROLEUM EQUIPMENT INSTITUTE

PMAA PETROLEUM MARKETERS ASSOCIATION OF AMERICA

SSDA SERVICE STATION DEALERS OF AMERICA

SIGMA SOCIETY OF INDEPENDENT GASOLINE MARKETERS OF AMERICA

STI Steel Tank Institute